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Various rectal ailments are treated with medicines administered through an enema tube: [757]

The Chiricahua use the enema tube in cases of the passing of blood, for hemorrhoids, or for long-continued stomach trouble. The tube is of carrizo or elderberry wood. It is used on both men and women. The medicine, made from plants, is a liquid and is poured in. Then the one doing the curing blows into the tube. After the tube is taken out, a powder made of pulverized dry plants is placed in the rectum and around it. Last some grease mixed with red ocher is rubbed around the anus. [759]

For blood in the stool, the root of cinquefoil is ground up and mixed with water; the decoction is drunk. It is also applied externally to aching parts of the body. Apache plume (*Fallugia paradoxa*) is used as a laxative, while for diarrhea cudweed (*Gnaphalium decurrens*) is recommended. "Boil the flower if you want to take it for diarrhea. Then dry it. It keeps dry all the year around. Pick it toward fall when it blooms. Drink it like a tea. Drink it first and eat afterward." [137]

A cure for mumps and for swellings on the neck draws upon sympathetic magic. "If you have mumps or lumps on the neck, get a plant with a bulb, burn it to ashes, put the ashes on the place with grease, and tie it up." [755]

Oak root is shaved, soaked in water, and used as an eyewash. [137]

A number of pungent plants, among them sage and *Hilaria cenchroides*, serve as remedies for colds:

For headache, crush and smell strong flowers and plants. Do it when the nose is dry and you feel that you are getting a cold. But do not use them as snuff; do not breathe it right up. Sage is crumbled, mixed with tobacco, and smoked in cigarettes for colds. They also boil it, strain the liquid, and drink it.

The most widely used medicine for headaches, colds, and coughs is the root of osha (*Ligusticum porteri*): [137]

Mix it with tobacco and smoke it for a cold. Chew it for a cold or cough too. Grind it up, mix it with water, and rub it on the affected part, on the nose if that is stopped up. If this doesn't work, boil some and drink the water. It may cause vomiting, but it is good for a chest cold. For headache, grind it up, mix it with water, and rub it on the forehead.

The screw bean (*Strombocarpa pubescens*) is a highly considered specific for ear trouble. "Grind it up. Put a little salt and [137]

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a ceremony to save him, an herbalist, a man or woman who knows what plants will help this sickness, may be called in at the same time. In fact, the shaman may advise this. His power may tell him that someone who knows a good plant is needed. I know cases where a man is pretty sick with gonorrhea and they get him well.

Illnesses peculiar to women are treated by a combination of herbalism and ceremonialism often:

If menstruation stops and the woman is not with child, it is a serious disease called "blood is in her." It can cause a woman to die. For this "flint medicine" is used. This is a lightning-riven twig. The wood is chipped off, boiled in water, and the medicine put in a bowl or cup. Whoever gives it marks it with pollen, performs a ceremony with pollen, and then it is drunk. Just people with special knowledge can perform the ceremony.

For pain at the monthly period and for an excessive flow of menstrual blood, this medicine is also given. Sometimes scrapings from a flint or "thunder arrow" are added before it is taken.

So great a scourge is tuberculosis that plants considered effective against it assume much importance, and their use is accompanied by a great deal of ritual. The most highly esteemed specific for this disease is "narrow medicine," *Perezia wrightii:*

"Narrow medicine" is powerful. It is a root which is ground up and put into water. It is not boiled. Water is put in a shallow basket which is lined with pitch to make it watertight. Then the medicine is added to the water, and four hot stones are put in. It is necessary to use four. It foams up when it is heated. There is a prayer, and a cross of pollen is put on the medicine. Then pollen is held to the four directions and put on the head and back of the patient. A cup of the medicine is taken and held to the directions four times. Then the patient drinks. This is good for tuberculosis. Lots of people get well from taking it.

After taking the medicine, the patient lies out in the sun and gets heated up. He vomits up all the tuberculosis. If he doesn't vomit, he has to defecate. It works either way. Sometimes you see the tuberculosis worm alive and about a half inch long. Then the patient starts to regain his health.

This herb has been in use a long time. My great-grandmother used it. If the patient is not too far gone, it works. It is given only once or twice. If you take much of it, it makes you weak. It is very expensive. You give a great many things for it—even a horse.

If the person giving it does not know the secrets of it and puts too much in, the patient will go crazy and kill himself. If you don't know the secrets, even though you know the right amount to give, it will hurt you. Tuberculosis is usually treated by old women who know a good deal about herbs.

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My father sang the songs of the bear and found out what had to be done. He was told that a mixture of different herbs had to be given right away. That was to stop the bleeding. They got the strongest herb first. This one was pointed out by the bear. My mother went and got it, and that night it was given to the girl in four doses. It was given in pollen, and the bowl was lifted to her head four times, then to her lips four times, and she drank it from the side that was marked with pollen.

The next thing was to get after the pneumonia. The girl was stronger now. My mother mixed up the second dose of the same medicine they had given her before. They thought the second dose would surely stop the hemorrhage for good. They gave the medicine to her four times again.

Then my father started in. He took the right front paw of a bear, warmed it, and put it on her chest where it pained most. Then he took a bowl and put it to her chest. He sucked. Blood and pus and suds came out and foamed up. He did that four times. They had real good medicine for the pneumonia. It was the blazing star.[57] It was ground fine, mixed with grease and water; then they rubbed her with it and wrapped her up with some of it on her chest. They tried to make this ceremony short because she was weak.

The second night it went the same way. My father sang two songs. He marked her with pollen. He used the bear paw, putting pollen on it first. He sucked pus out of her again. It came out easily this time.

Now he waited two days before doing anything more for her, but he had my mother continue to give her medicine. He saw that the girl was gaining and getting well.

The third night he started in, he didn't know whether to suck or not. "There is no use to suck. Let me look at her," he said. After singing he looked and saw there was just a little pus left. "I don't think it is necessary to suck again," he said. But he asked the bear. The bear said he had better take it out because that little bit might get bigger. So he sucked it out. Before he sucked he always marked the place with pollen and put pollen in his mouth.

The girl said she could breathe much better. She said she wanted to get well quickly. She prayed all through the ceremony. That's why she got well so quickly. Then the fourth night of the ceremony came. It was a short ceremony this night. The girl was getting along nicely now. They just gave her the medicine.

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Another account of the acquisition of a bear ceremony is of special interest because the final paragraph suggests the use together of multiple powers:

A long time ago a group of men went far south looking for horses and cattle. All the party except one man got killed, and, in trying to make his way back, he got lost. In those days they dressed in a buckskin loincloth and buckskin jacket.

[57] Two plants commonly known as blazing star are *Liatris punctata* and *Mentzelia multiflora*.

[137]

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They had to run the horses up the side of a mountain and were at the top. One of them caught a gentle horse and got on it. The other roped a wild one, and when he was about to get on, it pitched with him and threw him off. He lay there as though he were dead. Only his throat moved a little.

The man who was left sat there crying. He didn't know what to do. He had a little buckskin pouch of pollen tied around his waist. There was one old sorrel horse standing near by. He marked the forehead of the horse with pollen and asked the horse to help him restore his companion. He led the horse to the man, from the east, and the horse put his nose to the man four times and neighed. In the same way he led the horse to the injured man from the south, the west, and the north, and the horse acted the same each time. Then the injured man began to stir, and he got up and asked what had happened. The sorrel horse went back to the herd then.

Later this sorrel horse talked to the man it had cured. It told him where the two men should camp that night on the return journey. They followed this advice. The horse told him where to camp for the second night too. This was at an open place, but the horse said, "Do not be afraid even though it is out in the open." They camped in that place and were not disturbed. The third night the horse told him that they should camp at a place called Sand House. On the fourth night the horse told him that they should stop between two mountains.

Then the horse spoke to the one it had cured. It told him, "I'm old and I'm no longer strong. I'd like to take you back to the place where you live, but I can't make it. A man who is thin can make it back to his home. But horses are different. We have to be fat and strong. So after you start out tomorrow you are going to miss me. But don't look for me. I am going back to my home. But I'll tell you now just how to continue your journey, where to stop each night, and where your relatives are now."

[756]

And the horse told him, "I give these songs to you. You will be a shaman through the horse. If anyone falls off a horse and is injured, you can heal him with these songs. These songs will cure even if bones are broken. And here is some medicine to use for those who are hurt inside.[39] But if the large cords at the back of the neck are broken, the ones which hold up the head, this ceremony will not be able to restore the person."

The men continued the journey as the horse directed and got back safely to their people.

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How this man effectively used the ceremony he thus obtained is the subject of another narrative:

A leading man rode out with others to get horses that they had tied out somewhere. The rest came back, but this leading man was still missing. His family were worried. Then someone saw his horse standing on a ridge. It was saddled,

[137] [977] [232]

[39] Possibly "horse medicine" (*Eriogonum jamesii*), of which it is said, "It is a plant used in the horse ceremony. It is chewed for luck with horses. Give it to horses, too, when they are sick."

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they may take, even though they lay no claim to a ceremony from the owl. A man who was gathering wormwood (*Artemisia frigida*), one of the plants known as "ghost medicine,"[33] explained: "Sometimes when you feel nervous and don't sleep well, you fumigate the house with this. People use it after a funeral." Others tell of self-treatment that "could be tried by anyone."

For trouble with ghosts I use "ghost medicine" and also ashes. I put a cross of ashes on my forehead at night. The Silas John cross is used too. I used it last night. A black-handled knife under the pillow is good for this too.

By scarring your nose with a live coal, you keep ghosts away. You take a burning stick, wet it at one end, fix this end on your nose, and let it burn down so that it scars your nose. Then the ghost will fear you and keep away. Ashes can be put on the nose to keep away ghosts too.

But, though self-purification often succeeds in dispelling persecution, in a residue of cases the attacks are so acute that there is no recourse except to consult an owl shaman. The ghosts are of two kinds—those of enemy peoples and those of tribesman (often of deceased relatives). Correspondingly, there are owl shamans whose rites are effective against enemy ghosts, and there are those whose ceremonies banish tribesmen's ghosts.

Most cases of enemy-ghost sickness result from battles.[34] "If a man who had killed an enemy thought he couldn't stand the haunting, he went to a shaman who used an owl ceremony on him." "If you have enemy-ghost sickness, you take a black silk handkerchief, a cross, and a knife and give them to one who knows songs for this. Then he can work for you. I've seen it

[33] Others are squaw weed (*Senecio filifolius*) and sage (*Artemisia filifolia*).

[34] It is unlikely that enemy-ghost sickness was ever very prevalent. Despite general dislike of the sight of the dead, the ghosts of those known or continually opposed in life are more likely to be feared than are the ghosts of persons who fall under the general classification of "enemy." Some individuals evidently had very little apprehension concerning the enemy dead. One old warrior said, "We had little fear of killing at war. War was just a kind of sport. Few had fear of the dead enemy." Another man, when he was asked whether one who killed a member of another tribe was in danger, seemingly discounted the supernatural risks altogether, for he replied, "Yes, the enemy might plan a raid to avenge the death of the man he killed."

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The only other times a man will call the name of another to his face are when he is drunk or angry; a man in his right senses won't do it. But if a person is angry with another, he drops all reserve and calls the other's name freely, telling him what he thinks of him. You have to be careful about this, for it means a fight. 551 576 578

It is considered very impolite to call a man's name to his face. You might call his name when he is not present, but we think it impolite to call the name of a person who is with you. Not long ago I was by the roadside with a young fellow. An old man was riding past. This young fellow forgot himself and called the rider by name. The old man paid no attention and rode on. The young fellow felt pretty much ashamed.

An occasion when the name was purposely used to start a quarrel was described:

This boy came toward me, calling to me and using my name. "You think you're smart!" he told me. He used my name a lot. He did it with emphasis. Then we started to fight.

Very early the next morning, before I was out of bed, he came over. He had come to tell me that he was sorry for what he had done. He used my name this time too. This was a special occasion; that's why.

The proper use of the name is a potent factor in obtaining a favorable response to a request: 551 574 576 757

One time my wife and I wanted some medicine to keep. We were collecting lots of roots. We had a sack of them. We didn't know how the leaves of one particular plant looked, so we couldn't collect any. My wife heard that an old lady had this kind we wanted, and she asked me to go and get some.

I didn't want to do it, for I knew this plant was valuable to the old lady. She was a ceremonial woman and used some in her ceremony. But my wife kept bothering me until I went to the old lady's home. First I visited with her for a few minutes. You have to act just so to the old people. When I got there, she began to talk about things, about the weather. When you call on a person you haven't visited before, you are treated extra fine, for that person knows you want some favor.

I didn't want to ask her for it. I guess she thought I needed help. People come to her because of sickness. Finally, she asked me what I wanted. I started to say I didn't come for anything special, and then I had to say it; so I called her by name and said, "So-and-so, I am gathering some plants, just out of curiosity. I have some of my own, but I hear you have a plant used in a certain sickness. If you care to, I wish you would give me a sample of it."

I used the language that brings results. She gave me a handful of it. This medicine is for tuberculosis. It is called "narrow medicine" [*Perezia wrightii*]. [137]

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GEOGRAPHICAL SETTING

101 These Apache were a highly mobile group and their [484] geographical background is, therefore, not so well understood as is that of sedentary tribes. Also in the early days of Spanish penetration they were known by various names and confused with other groups. In view of these circumstances it is impracticable to try to fully describe their geographical setting; hence, only a few examples of this aspect of their environment will be presented.

133 The territory through which they ranged constituted a • 137 rich variety topographically and climatically, ranging from the flat lowlands of the Southwest, such as the Tularosa Basin, where sagebrush *(Artemisia filifolia)*, creosote bush, Mormon tea, cacti, yuccas, and mesquite comprise the characteristic vegetation; through the low hills where mescal and sotol abound; the foothills of the mountains where one-seeded juniper, piñon, and three-leaved sumac grow in abundance; to the higher elevations covered by growths of western yel- 132 low pine, spruce, and aspen. The mild, sunny winters and 133 devastatingly hot summers of the lowlands contrasted greatly with the severe, snow-ridden winters of the mountains, although the mountains were cool and invigorating 136 during other seasons of the year. The fauna varied with the 133 elevation, too. In the flats were the prairie dogs, rabbits, and antelope; in the mountains, deer, elk, and mountain sheep.

221 Of all this variety the Apache was the master. He moved with the seasonal change of weather, and followed [182] the wild food harvests as they occurred. His adaptation and response to the ecological region in which he lived was sensitive and complete. When the colder weather came he removed to a lower altitude; in summer he was in the high- [222] lands again. When the mesquite and screwbean ripened on the flats, parties of Apache were there to gather them; when the hawthorn hips were ready in the highlands, Apache were nearby to take them. These people knew nature's calendar by heart, and no matter whether a grass seed ripened or a

2? Castetter and Opler N, E-5 (1931-1934)1936
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133 leys are traversed by the Pecos and Rio Grande rivers and in the region between these rivers are other valleys entirely enclosed by higher ground with, therefore, no draining outlets. The Tularosa Basin is one such enclosed area *(14:*11). It has a maximum length of about 150 miles and a maximum width of about sixty miles. The interior of the basin contains an extensive area of alkali flats and white gypsum sands about four thousand feet above sea level, to the south of which lies a large sandy desert with slight relief and lack of definite drainage. The northern half of the basin includes, between the mountain borders, a plain that descends gradually from the Mesa Jumanes, six thousand to seven thousand feet above sea level, to the alkali flats, but is broken by many hills, buttes, and ridges, and by a ribbon of extremely rough lava that extends along its central axis for more than forty miles (*14:*12). The altitude of the Mescalero Indian Reservation Agency is 6,627 feet *(7:*7.).

132 133 The climate of the basin is typical of the arid Southwest, marked usually by a clear sky, dry rare atmosphere, warm days and cool nights, both in summer and winter. The average annual rainfall of the lowland plains is about ten inches [137] and thus supports a vegetation of characteristic desert appearance. The high mountains at the borders of the basin receive more precipitation, are covered with forests, and give rise to several small streams which flow into the basin. Owing chiefly to fluctuations in altitude the basin has a wide range of temperature.

133 [131] As has already been mentioned, the favorite haunts of the Mescalero were in the San Andreas, Sacramento, and Guadalupe mountains. The San Andreas extend in a general north-south direction, and for a distance of eighty miles comprise the west wall of the Tularosa Basin, reaching a height of 9,040 feet in Salinas Peak. The range is remarkably continuous and unbroken, having only two principal notches and terminating at the south with San Agustin Peak, which is less than seven thousand feet above sea level *(14:*30).

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The Sacramento Mountains, lying east of the southern part of the Tularosa Basin, form about fifty miles of its mountain wall and consist essentially of a great plateau rising in places to a height of more than nine thousand feet, descending gently eastward toward the Pecos Valley. On the west, however, it breaks off abruptly. The canyons are steep and short. Because the crest of the mountain is near the west side of the range, most of the drainage is eastward toward the Pecos River; only a narrow belt of the area sends its waters toward the west *(14:26)*.

The dominant vegetation of these first two mountain ranges, utilized by the Mescalero Apache, is piñon pine, one-seeded juniper, and western yellow pine. In the third range mentioned, the Guadalupe Mountains, are to be found the important mescal and sotol in abundance. On Meinzer and Hare's *(14:194)* map showing zones of native vegetation, in a portion of the Tularosa Basin, mesquite is a dominant plant, and it will be seen later that both the mesquite and yucca of this basin constituted important sources of food for these Indians.

Sulphur Spring Valley, together with the rest of that part of Arizona which lies south of the Gila, was purchased from Mexico in 1853 and until about 1873 was occupied exclusively by the Chiricahua Apache. The trough occupied by Sulphur Spring and Arivaipa Valleys is bordered by two parallel mountain chains which extend from the Gila River to Mexico. Included in the east chain are the Chiricahua Mountains, the largest in the region, which formerly constituted a favorite dwelling place of the Chiricahua Apache. In fact, the name Chiricahua was at first applied only to the Indians ranging in the vicinity of these mountains. These mountains extend southward from Apache Pass about thirty miles to the head of the San Bernadino drainage, twenty miles north of the Mexican boundary. The range is massive and in the northern portion rugged, although to the south, where it is wider and more massive, the crest line is remarkably even and a considerable portion of it more than nine thousand feet above sea

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133 level. Numerous canyons cut both sides of the range, and, during the rainy season, many small streams flow a short distance into the valley *(15:*22;*9:*4).

• 137 [132] Sulphur Spring Valley and adjacent mountains show marked variation in annual precipitation averaging, for the Chiricahua Mountains, more than twenty inches *(15:*78-83). Meinzer's *(15:*182-84) description of the native vegetation of Sulphur Spring Valley drainage basin shows western yellow pine as the dominant vegetation on the higher levels of the Chiricahua Mountains. On the foothills and lower ranges junipers and oaks are common, and in ribbons of timber which stretch along the stream courses, oaks and sycamores are the characteristic vegetation. The higher parts of the valley adjacent to the mountains support what he terms upland grass and brush zone, extending over three-fourths of the valley. Most of it is covered with a light growth of various grasses, but in the central and southern parts of the valley it includes extensive tracts of shrubs, especially creosote *(Covillea glutinosa)*, as well as groves of Yucca. Lying on the middle and lower parts of the stream-built slopes is a zone of mesquite covering about one-sixth of the valley surface and also extending as scattered tracts on the upper slopes. A small portion of the valley area is covered with sagebrush *(Artemisia filifolia)*. Low tracts, partly enclosed by the mesquite areas, support a zone of alkali vegetation—shadscale *(Atriplex canescens)*, *Suaeda suffrutescens*, alkali sacaton or bunchgrass *(Sporobolus airoides)*, and Mexican salt grass *(Eragrostis obtusiflora)*. Finally, in the lowest part of the flat in the north basin is an area of about fifty square miles practically destitute of vegetation.

433 182 ## RELATION TO NATURAL SURROUNDINGS

It is especially important to understand the Apache's relation to his natural surroundings because his economy proceeded almost entirely on a hunting and gathering level. There was a late introduction of agriculture which will be

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Agriculture has never exerted influence enough to figure in Chiricahua or Mescalero Apache ritual, belief or myth except in one instance, where there is an association between the growing crop and the cricket. Crickets are placed around the field and prayers are addressed to them to help the crops grow. The Mescalero put a live cricket with the seed to be planted and take care not to kill a cricket lest their crops be reduced. 241 825 [796] [773]

Informants reported that their maize was blue and red mixed and that they never had either pure yellow or pure blue varieties. Samples of maize grown at present on the Mescalero reservation are mixed blue and white. Also in an old parfleche purchased from a Mescalero Indian were found dried maize kernels which were represented by informants as the type grown formerly by the Mescalero. Mr. Volney Jones, of the Ethnobiological Laboratory of the University of Michigan, reporting by correspondence upon these grains said: "It is of a type which is grown by some of the Pueblo Indians but is very much smaller. The type is intermediate between flint and dent, having the flinty or hard consistency of flint corn but the grain shape of dent corn with only a slight tendency to dent." 243 137.

Maize was usually cooked like mescal, in an underground oven, by the Mescalero. Wood was first burned to hot ashes in the pit, then the whole ears were sprinkled with water and thrown in. They were next covered with grass and dirt and cooked over night, after which they were removed and stored, husk and all, and did not mould. When desired for a meal the ears were boiled and were said to taste like fresh maize. 252 [251]

Another method of preparation was to roast the ears as described above, cut off the grains, and dry them, and store them in sacks until ready for use. The Chiricahua informants claimed that they did not roast maize in underground ovens although they saw the Navahos do it. [251]

Maize was also dried on the cob. All except two husks were removed. Then it was dried in the sun by tying these two husks together and hanging the ears up on strings or on trees. 251

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PLANTS USED BY THE MESCALERO AND CHIRICAHUA APACHE FOR FOOD, DRINK, AND NARCOTICS

Foods

The stately Agave, a characteristic feature of desert vegetation of southwestern United States, constituted a very important source of vegetal food for these Apache. Several native species were utilized, but the most abundant one in the area was *Agave parryi*, commonly known as mescal or century plant (although these common names apply equally well to several other species). Contrary to popular opinion, the Agave bloom in much less than one hundred years; however, each plant blooms only once, after which the leaves wither and die. Around the dead plants are usually to be seen a number of young plants formed from suckers of the parent plant. It is from the food itself, known as mescal, prepared from *Agave parryi*, that the Mescalero Apache have been given their name *(28:*455).

Although not so extensively as formerly the Apache women still make expeditions to regions where Agave grows in abundance for the purpose of collecting the edible portions of the plant. These visits are usually made in late May or early June when the reddish flower stalks begin to appear and the plants are most palatable. Plants not blooming are known as "man" plants; those bearing a flower stalk are designated as "woman," and the Indians advise against using the "man" plants for food since they are bitter and spoil all mescal with which they are baked. This is because the "man" is smoking and the smoke permeates all the mescal in the pit. The "man" changes into "woman" when it flowers, then dries up and is gone.

The crowns of the mescal plants are dug out with three-foot sticks cut from oak branches *(Quercus* sp.) and flattened at the end. This end, when pounded with a rock into the stem of the plant just below the crown, permits the crown to be removed readily. A broad stone knife is used

2: Castetter and Opler N, E-5 (1931-1934)1936
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noon of this day so as to prevent rain. The following morning all the mescal is removed. 252

While the mescal is roasting the women are supposed to stay away from their husbands, and if it is not completely roasted when removed from the pit the Indians believe the women have disobeyed; also that the men should have known better. This is somewhat similar to the view held by the Pima regarding the roasting of mescal, for when the crowns were not cooked thoroughly the difficulty was attributed to the incontinence of some of the members of the party *(25:*70; *4:*11). [834] [191]

The pulpy centers of the black, roasted crowns are released from their charred leaf bases and pounded vigorously into thin sheets on a rock. This brown, juicy pulp is spread out to dry on "mescal cradles," very loosely woven shallow or tray baskets made from the leaves of *Yucca elata*, and in these the prepared mescal is carried home. Unfermented mescal juice is often sprinkled over mescal when being dried. This gives it a glaze which aids in preserving it. It may be eaten as soon as baked or dried and stored for future use in hide containers (parfleches). When wanted, the desired amount is cut off, soaked in water, and when softened the water is squeezed out and the mass eaten without further preparation. A piece of crown is cut off and chewed and the inner side of the leaves chewed and scraped, much as we eat globe artichokes. When the pithy center of the leaf is reached it is discarded. Mescal is sweet, having an agreeable taste somewhat like molasses, and a mild laxative effect. [415] [824] [251] 262 [251] [415] [252]

Many are the combinations in which mescal is used. After the dried product has been softened by soaking it is kneaded together with ground piñon seeds or walnuts (at present peanuts may be used) until the whole is of a doughy consistency; it is then ready for consumption. Mescal mixed with juniper berries *(Juniperus scopulorum)* is another favorite food, while the fruits of the three-leaved sumac *(Rhus trilobata)* are also ground with mescal and the mixture dried and stored for future use. Marcy *(13:*201), 252 262 [251] [137]

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252 writing of Apaches in the vicinity of the Guadalupe mountains, made the following comment in the year 1849 concerning the preparation of mescal: "... we have this evening for the first time seen the Maguey plant which constitutes almost the only vegetable food that the Apaches and southern Comanches get for a great portion of the year. They prepare it by boiling it until it is soft, then mash it into a paste, and I am told that in this form it makes a very palatable, nutritious food." In view of the fact that no record has been encountered elsewhere of mescal having been prepared by boiling, and present day Indians have no knowledge of such preparation, it is possible that Marcy had some other plant in mind.

Another well known desert plant, sotol *(Dasylirion wheeleri)* was utilized in much the same way as mescal. The crowns were gathered when the flowers were beginning to emerge, prepared in the same way as was mescal and baked for the same length of time. When baked they were removed from the pit, stripped, pounded to a pulp on a rock, and spread out to dry on "mescal cradles." The product was usually saved for winter, when it was eaten like a cake. Sotol crowns were not so desirable for food as those of mescal since they are rather hard and woody, only the youngest and most tender portions being edible.

Occasionally the emerging sotol flower stalks, as well as those of bear grass *(Nolina microcarpa)*, mescal *(Agave parryi)*, and amole *(Yucca glauca)*, were removed, placed on a bed of embers and roasted for about fifteen minutes, after which the outer charred portion was stripped off. The central edible portion was white, soft, sweet, and quite palatable and was regarded as the most delicious portion of the plant. These stalks might also be boiled or eaten raw. Just as the stalk came into bloom it was removed from the plant, peeled, cut into pieces and boiled. It was then dried and stored to be used as a vegetable.

Still another characteristic plant of portions of the American Southwest is the narrow-leaved soapweed or palmilla *(Yucca elata)*. The crowns of this species were gath-

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The crowns of this species were gathered any time from the middle of March to the end of summer, the portion of the stem from the ground to the leaves being peeled and baked overnight in an underground oven in a manner similar to that in which mescal was prepared. The yellow-to-brown baked product was known as *nigahe*. After being dried in the sun, broken into pieces, and softened in water the rather sweet product was ready to be eaten. The tender central leaves of the related datil *(Yucca baccata)* were cooked in soups, boiled with meat, and used in various similar combinations.

The large flowers of the narrow-leaved *Yucca elata* were also boiled and eaten as a vegetable, but the less palatable ones of the broad-leaved *Y. baccata* were eaten only if they could be obtained before the summer rain, since the Apache maintain that they are bitter thereafter.

The fruits of several species of Yucca were also utilized as food. The somewhat banana-shaped fruits of the datil *(Y. baccata)*, as well as of the palma *(Y. macrocarpa)* were gathered before they were fully ripe, laid on grass *(Andropogon furcatus)* on the ground, covered with the grass, and allowed to finish ripening in the sun. After roasting in hot ashes the hard black covering was stripped off, the fruit split lengthwise and the seeds removed. The white pulp was then ground and made into large cakes, which might be stored indefinitely. Frequently the roasted fruit was pounded to pulp on an animal hide and allowed to drain in a basket placed over a pan. The juice might be drunk or poured over and mixed with the cake pulp, making the latter soft and sticky as well as aiding in preserving it. In either case the pulp was spread on Yucca leaves to dry for two days in the sun, being always adorned with sunflower blossoms to "make it pretty." The Indians prayed while placing the sunflowers, the ceremonial significance being that the sunflower was used as a symbol of the fructifying influence of the sun, and this use constituted a prayer that the sun continue to make the yield plentiful year after year. The Mescalero Apache tell of a Yucca which grows near El Paso and has a "white" fruit and sweet sticky buds. They were

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263 picked, cut open, dried on sticks, and used in sweetening different foods.

262 [178] The fruits of various genera of cacti are still used as food but no longer constitute an important article of diet among these Apache. Formerly the Chiricahua Apache, [137] who ranged in western New Mexico, southeastern Arizona, and to the south in Old Mexico, utilized as food the fruit of the sahuaro or giant cactus *(Carnegiea gigantea)* and of the organ-pipe cactus or pitahaya dulce *(Lemaireocereus thurberi)*. Their name for it was *madaya*, an Apache corruption of pitahaya. The gathering and utilization of these [171] fruits by the Chiricahua Apache was not unlike that reported by Castetter and Underhill *(5:21)* for the Papago; [184] the reader is referred to that paper for a discussion of the subject. The Mescalero Apaches never have used these species as they do not grow within their present or past range.

252 262 [413] [824] [251] [824] The ripe fruit of a number of species of Opuntia, prickly pear cactus, was commonly utilized as food. The ripe fruits, or tunas, were removed with a pair of wooden tongs, made by doubling a pliable branch, and cleaned of spines with a brush of stiff stems of sacaton grass *(Sporobolus wrightii)* while held with the tongs. The fruit was then placed in burden baskets and taken home to be eaten fresh or dried and stored. To dry, the fruit was split lengthwise, freed of seeds, and placed on big blue stem grass *(Andropogon furcatus)* in the sun. Sun-dried fruit was usually boiled before eating, although soaking in water sometimes softened it [251] enough for use. Sometimes, after the seeds were removed, the fruit was mashed into a pulp and stored in this caked [953] form. Many of the Indians of the Southwest contend that these tunas or nopales must be eaten with discretion as too much of the fruit causes a fever; Bourke *(2:44)* corrobor- [222] ates this. The Chiricahua and Mescalero Apache women [482] collected the tunas in large baskets carried on their backs, suspended from a tumpline which rested on the upper part [251] of the chest. The split fruit was spread out to dry in the sun. Tunas formerly constituted a very important Apache food.

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food. The fruits of the hedgehog cactus *(Echinocereus coccineus)*, the salmon-flowered hedgehog *(E. lecanus)*, the desert strawberry *(E. fendleri)*, the golden spined strawberry *(E. chrysocentrus)*, and the rainbow cactus *(E. rigidissimus)* were gathered occasionally and eaten fresh. Several species of *Neomammillaria*, including the sunset cactus *(N. grahami)*, the snowball pincushion *(N. olivia)*, and the horned toad cactus *(N. mainae)* were at times eaten without preparation, although fruits of the sunset cactus were often dried and stored for winter use, when they were cooked before being eaten.

Mesquite *(Prosopis glandulosa)* is one of the most widespread and best known plants of the Southwest and its sweet, nutritious fruits have been and still are rather extensively used as a source of food. The beans of the mesquite were gathered, boiled, pounded on a hide or ground on a metate, the mixture placed in a pan and worked with the hands until it attained a thick consistency. Formerly the raw beans were ground on a metate into flour, at present a meat grinder is used for this purpose. In either case the seed coats were winnowed from the flour. The mesquite flour was usually made into bread as well as into a sort of pancake, which these Indians regarded as most delicious. Frequently the beans were cooked with meat, and the seed coats spit out as the combination was eaten. Gregg *(8:102)*, evidently referring to these Apache of New Mexico, wrote that the mesquite pod was ground for flour with which to make their favorite pinole.

Occasionally the pods containing the seeds were boiled in water until the mixture turned red, after which the pods were taken out and mashed by hand, then put back in the container and boiled again until the water had been almost all boiled off. This constituted a sort of pudding.

Similarly the yellow fruits of the screw bean or tornillo *(Strombocarpa pubescens)* were extensively gathered, dried, and stored in sacks. The pods, which are somewhat sweeter than those of the mesquite, might be chewed and eaten raw as a delicacy but they were more commonly dried,

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252 washed, ground into flour, and made into a sort of bread.
262 Both this and the mesquite bread are still extensively used by these Apache. This was also reported by Bourke *(2:*50) and by Standley *(28:*458).

252 In the fall of the year the pods of the New Mexican
251 locust *(Robinia neomexicana)* were occasionally eaten raw.
262 However, they were more often cooked, stored, and utilized
137 similarly to those of the mesquite. The large clusters of pink flowers were gathered in late June, boiled, and eaten as a vegetable; or they might be stored in bags, and when wanted, re-cooked.

252 The Apache also utilized as food the small wild potato
262 *(Solanum jamesii)*, common in the valleys, as well as *S.*
137 *fendleri*, found usually in the mountains. The potatoes of the former species were usually gathered in August, while those of the latter species were not gathered until the end of September. They were boiled unpeeled and thus eaten. The *S. jamesii* product was sometimes dried, stored, and later ground into flour for making bread.

The tuberous, rather sweet, but tough roots of the Indian potato or *camote de raton (Hoffmanseggia densiflora)*, which were to be found growing only on the flats, were eaten either raw or cooked.

All species of oak, except one, go under the name *tcintcile; Quercus grisea* was known as *tcintcile donagogade*, "oak that never dies," and its acorns were used for food as were those of the Gambel oak *(Q. Gambelii)* although the fruits of the latter are not so sweet as those of the live oak and were, therefore, not as extensively used. In any event
[251] the acorns were frequently gathered when ripe, roasted slightly, then pounded and mixed with dried meat or fat and the mixture stored away in hide containers. The fruit might also be eaten raw. Walnuts or nogales *(Juglans major)* ripened in September, when they were gathered,
[251] pounded with clubs to remove the hulls and washed. The nut meats were often eaten raw, but were at times mixed with mesquite gravy or ground and combined with roasted mescal, and the mixture stored. The Warm Springs Apache

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(a Chiricahua band) at present prepare the meats by boiling in water. 252 262 137

The seeds of the piñon pine *(Pinus edulis)*, which ripened in October, were very extensively gathered for food before they fell from the tree. The "nuts" were either eaten raw or roasted for a few minutes in a pan so they would keep, then shelled. Often they were mixed with pulp from the fruits of yucca to make a pudding. When used raw they were ground, rolled into balls, and eaten as a sort of delicacy. These Apache did not permit their pregnant women to eat piñons, lest the child would be born with fat all over the body and make delivery difficult. [843] [845]

In times of food scarcity the seeds of the western yellow pine *(Pinus scopulorum)* were utilized but they never constituted an important article of diet on account of their small size. They were ground, the edible portion rolled into balls and eaten raw. Those of the limber or western white pine *(Pinus flexilis)* were larger and might be utilized but were likewise of little importance since the species was not abundant. Formerly the seeds were gathered before they began to fall, by shaking from the cones, but never before fully ripened. They were then roasted and hulled, or sometimes the seeds ground, shell and all, and eaten.

It might be well in this connection to mention the use of pine bark as a source of food by the Apache. The inner bark of *Pinus scopulorum* is quite sweet and palatable and has often been utilized as food, especially when other foods were not abundant. Portions of bark were stripped from the tree and the inner bark scraped off. Hrdlička *(12:22)* referred to it as being baked in the form of cakes. Formerly these Indians cut out large squares of bark with a long pointed stick and scraped off the inner bark with a smaller, sharpened piece of wood. It was usually boiled, or it might be chewed and eaten raw, but in this state it was rather difficult to digest. If boiled for a considerable period of time the sugar would crystallize out. The bark of large aspen trees *(Populus tremuloides)* was also utilized in the same [413]

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252 262 137 way. Children commonly ate the sweet bark of sumac *(Rhus cismontana)* as a delicacy.

263 222 137 Not unlike the above was the obtaining of sugar from the box elder maple *(Acer negundo)*. In olden times, before sugar was easily obtainable commercially, these Indians secured material for sweetening by boiling the inner bark, and outer portions of the wood just beneath the bark, until the sugar which it contained crystallized out. Also scrapings from the inner bark were dried and placed in the *xel* (parfleche) for winter use. Likewise sap from the New Mexico maple *(Acer neomexicana)* was collected and boiled to obtain syrup and sugar. [251]

252 262 137 A number of species of fruits were occasionally eaten but did not constitute important Apache foods. Among these were strawberries *(Fragaria bracteata)* and the purplish fruits of the wild privet *(Forestiera neomexicana)*, which were always eaten without preparation. Raspberries *(Rubus arizonicus)*, mulberries *(Morus microphylla)*, and hawthorne fruits *(Crataegus cerronis)* were either eaten fresh or pressed into pulpy cakes, dried, and stored for winter use. [251]

Wild gooseberries and currants were quite commonly used. The purplish red fruits of the spiny-fruited gooseberry *(Ribes pinetorum)* has a pleasant acid flavor when ripe in September, at which time the spines may be easily brushed from the fruits. They were ground and compressed into cakes for winter consumption. Another gooseberry *(R. leptanthum)*, which has smooth fruits, somewhat larger than the former species, was eaten fresh or made into cakes for use during the winter. This species was the most eagerly sought because of the size of its fruits. The rather insipid fruits of two species of black currant, *Ribes wolfii* and *R. mescalerium*, were at times eaten without preparation by these Indians. Fruits of the former, in earlier times, were ground, dried, and pressed into cakes for storage, but are now used for jelly; those of the latter species, however, are usually cooked. Grapes *(Vitis arizonicus)*, which grow [251] [198]

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in the mountains and ripen from July to September, were eaten fresh or might be dried and eaten like raisins.

Fruits of the one-seeded juniper *(Juniperus monosperma)* were commonly roasted in a pan over the open fire, a little water added, and when the whole became thick and white it was used as a gravy. The larger fruits of *J. pachyphloea* were eaten fresh when they ripened in July, at which time they were rather sweet. They might be roasted on heated stones and used either whole or ground. One informant reported that the "berries" are boiled and made into jellies or preserves, either in July or during the winter.

The white evening primrose *(Anogra albicaulis)*, as well as one or two other species of this genus, has podlike fruits that were occasionally chewed as a delicacy without preparation; the seeds might be ground and made into a sort of gravy or boiled in soups. The white seeds of the anglepod *(Vincetoxicum productum)*, which ripen and open in September, as well as the pods of *Maurandia wislizeni*, were eaten fresh or after being boiled. Children occasionally gathered pods of the evening primrose, *Galpinsia lavandulaefolia*, cooked, and ate them, but they were not an important article of food. The hard fruits of *Jamesia americana*, which also ripened in September, contained large seeds and were occasionally eaten fresh. Children commonly ate fresh ripe ground-cherries *(Physalis neomexicana)* as a delicacy. The Chiricahua Apache say that the seeds of the unicorn plant (probably *Martynia louisiana*) were eaten by the boys when these Indians were prisoners of war in Oklahoma.

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Several plants were utilied as chewing gum, the most common being the milkweed *(Asclepias speciosa)*. The "milk" was squezeed from the leaves and stems on a heavy black clay and the mixture chewed like ordinary gum. The resinous secretion from the trunk of the piñon pine *(Pinus edulis)* was also chewed, as well as the buds of the valley cottonwood *(Populus wislizeni)*.

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In this connection it may be noted that the Apache frequently made jelly from fruits such as algerita berries

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252 *(Berberis haematocarpa)*, which ripened in September, and
262 elderberries *(Sambucus microbotrys)*. These were cooked
137 with a sweet substance, strained, and allowed to jell. Rose hips *(Rosa fendleri)* were at times eaten fresh but more frequently the pulp was squeezed into water and boiled to make jelly, while black chokecherries *(Prunus melanocarpa)*, which ripened in August, were either eaten fresh or [251] cooked to make a sort of preserve. Most commonly, however, the fruits were ground, pressed, and saved for winter, when the mass was cooked to make jelly. The Mescalero
262 Apache have used these chokecherries for many years. The
184 Chiricahua Apache called the fruit of this particular variety "bear's food" and did not eat them until they saw the Mes-
262 calero Apache do so. Another species of chokecherry *(Prunus* sp.) which grew in the Mescalero country was never eaten by the Apache, and most of these Indians were afraid to touch the fruits. The few who did occasionally eat them said they were intoxicating, and that the only way to counteract their effect was to eat fresh meat. The [251] fruit of the hackberry, *Celtis reticulata*, which ripened late [252] in September, was either eaten fresh or ground, caked, and dried for winter use. Sometimes jelly was made from it.

252 In common with many other groups of southwestern
262 Indians these Apache utilized to a considerable degree the
137 three-leaved sumac *(Rhus trilobata)*. The red fruits were gathered from midsummer to fall and dried in the sun. After grinding between flat stones the pulp was mixed with water and sugar and cooked. This jam was formerly commonly eaten with bread made of sunflower seeds and with prepared mescal. The fruits of *Rhus microphyllus* were similarly utilized.

Wild plants used as greens by the Apache, as well as other Indians of the Southwest, were red root or tumbleweed *(Amaranthus graecizans)*, purslane *(Portulaca oleracea)*, lamb's quarter, often called Indian spinach *(Chenopodium alba)*, leaves of pigweed *(Amaranthus retroflexus)*, the leaves of *Rumex occidentalis*, and osha or chuchupate *(Ligusticum porteri)*; all these are still utilized at the pres-

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ent time. They are not only eaten without preparation but are boiled and quite frequently cooked with meat or just the bones of animals, in combination with green chile and onions. Wood sorrel *(Oxalis violacea)* is often mixed with other leaves to be cooked or is eaten raw. The tops of fetid marigold *(Dysodia papposa)* and shepherd's purse *(Capsella bursa-pastoris)* are also used as greens, either cooked alone or with meat.

The young white rootstocks of cat-tail *(Typha latifolia)* were frequently gathered in the spring of the year and cooked with meat, as were the corm-like tubers of the sedge *(Cyperus fendlerianus)*. These were peeled and cooked or eaten raw. The Apache name for the last species, "feed to horse," was so given because the flowers and seeds were salted and fed to horses, and were said to be very fattening. The bulbs of wood-sorrel *(Oxalis violacea)* were eaten raw or, when abundant, were boiled. The raw fleshy roots of chimaja, also known as wild celery *(Cymopterus fendleri)*, were also utilized.

Leaves of dragon-head *(Dracocephalum parviflorum)*, the mint *(Mentha penardi)*, horsemint *(Monarda menthaefolia)*, and the pennyroyal *(Hedeoma nana)* were commonly used for flavoring. These Apache say that if they had no pepper this last named species was substituted in soups, but was not added until the soup had finished cooking. They also used the mint to keep water "cool," but probably meant that it made water more palatable to drink by imparting to it a cooling flavor. Hops *(Humulus lupulus neomexicanus)* were gathered in October, boiled, and used for flavoring in a considerable variety of ways. Formerly they were mixed with mesquite and screw bean flour (see p. 41) but at present they are mixed with wheat flour; they were also combined with wild potatoes to give flavor. More commonly they were used to flavor *tulbai*, the drink made from fermented maize. Wild onions *(Allium cernuum* and *A. geyeri)* flavored soups and gravy but were occasionally eaten raw. A sage, *Artemisia ludoviciana*, was also a flavoring substance for meat. A plant in very common use by vari-

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263 ous Indian groups of the Southwest was chimaja, also known
• 137 as "wild celery" *(Cymopterus fendleri)*, and these Apache used the leaves for flavoring soups and meats. It was gathered when in flower or seed and had a mild flavor intermediate between that of celery and carrot. The leaves were used
[262 in combination with other green plant parts and the roots
[252 were eaten raw.

262 Seeds of many plants held an important place in the
252 Apache diet, one of the more important ones being red root
137 or tumbleweed *(Amaranthus graecizans)*. The inflorescences were pulled from the plant, threshed by rubbing between the hands, and the seeds winnowed and ground to make flour for bread. Other species of Amaranthus, especially *A. retroflexus*, the pigweed, were similarly utilized. Four species of grass—dropseed *(Sporobolus cryptandrus)*, *Muhlenbergia* sp., *Panicum bulbosum minor*, and grapevine mesquite grass *(Panicum obtusum)*—were also used for food, the seeds of the first three being threshed, winnowed, and ground into flour for bread. Seeds of the dropseed grass were boiled and eaten as porridge, while those of *Panicum obtusum*, as well as *Panicum bulbosum*, were ground to make gravy and mixed with meat. The small seeds of the shepherd's purse *(Capsella bursa-pastoris)* and fetid marigold *(Dysodia papposa)* were secured by cutting off the tops of the plants and beating them on a hide. Then
[251 the seeds were winnowed in a basket tray in the wind. After drying they were stored and, when needed, ground into flour for bread. Sometimes the seeds were roasted without grinding and combined with other foods.

Ripe sunflower seeds *(Helianthus annuus* and *H. canus)* were gathered in the fall of the year by threshing. Those of the former species were also harvested when dead ripe, by women, who placed a basket under the plant and sharply struck the back of the sunflower head with a stick, knocking the seeds into the basket. They were sometimes ground and the flour used for a thick gravy, but more commonly this was sifted, made into dough, and baked on hot stones or in hot ashes. This kind of bread is still in common use. Cre-

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mony *(6:296)* reported the use of sunflower seeds among the Apache who ground them on a metate and made the resulting flour into cakes; Bourke *(2:47)* referred to the Apache and other Indian groups as having cultivated the sunflowers about 1870, the seeds of which were ground with corn into meal and made into cakes. Bourke's information that the Mescalero and Chiricahua Apache cultivated the sunflower is probably erroneous for these Indians are not known to have ever cultivated this plant. A jam made from the fruits of the three-leaved sumac *(Rhus trilobata)* was formerly extensively eaten with bread made from sunflower seeds. This jam is no longer in common use.

Seeds of other plants ground to make bread were notably false flax *(Camelina microcarpa)*, tansy mustard *(Sophia incisa)*, and the thistle *(Cirsium pallidum)*, none of which, however, were utilized extensively. The plants were threshed mechanically—false flax and thistle by shaking vigorously in the sack in which they were collected, tansy mustard by beating the pods with sticks. They were then winnowed, formerly in a hide because the seeds, especially those of false flax, would go through a burden basket, although a *tsa* (shallow basket) could be used. The flour from these species of seeds was made into dough and baked or the seeds might simply be boiled and eaten as were sunflower seeds.

The ripe pods of the vetch, *Vicia melilotoides*, as well as the wild pea, *Lathyrus leucanthus*, were cooked and eaten, or they might be dried and stored, to be soaked and boiled later.

BEVERAGES AND NARCOTICS

The most common and important drink among the Mescalero and Chiricahua Apache was *tulbai* (an Apache term meaning "water, grey" from the Apache *tu*—"water" and *bai* from *tibai*—"grey") One occasionally reads about the Apache using *tiswin*, also *twilt-kah-yee*. Cremony *(6:245)* wrote of an intoxicating beverage by the latter name, distributed freely by the Apache at their puberty

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the women became quite proficient and well known for their abilities along this line. 273 [462]

The above was the usual method of preparing *tulbai* but a number of variations of the process have been developed. Ground wheat was often added to the boiled corn to make the beverage foam, also to make it stronger. Occasionally yeast was combined with the mixture and not infrequently the juice of fermented mescal was squeezed into the liquid to hasten fermentation as well as to give a blended flavor. Chips of shaved oak root *(Quercus grisea)* gave the *tulbai* flavor, and mesquite root *(Prosopis glandulosa)*, [137] dandelion flowers *(Taraxacum officinale)*, and hop flowers *(Humulus lupulus neomexicanus)* were used for the same purpose, and to make the drink stronger. Hrdlička *(12:27)* referred to small quantities of roots of native plants being added to *tulbai* as "medicine." Our observation is that this needs qualification, to the extent that the Apache do say that *tulbai* is "good for you" and "cleans you out," but they do not use it in the first instance as medicine.

Frequently, wheat instead of corn was used to make the beverage, the process of germination, grinding, boiling, and fermenting being the same as with corn.

Both the Mescalero and Chiricahua Apache claim that they had no knowledge of *tulbai* in the distant past and that its use penetrated among them from the south. Most accounts have it that the Lipan Apache brought it northward, but some state it was learned from the natives of northern Mexico. Hrdlička *(11:190)* and Browne *(3:411)* are of the opinion that the preparation and use of this beverage was learned by the Apache from the Mexican Indians, Hrdlička recording that it was brought to the White River Apache from the more southerly Chiricahua Apache, who were said to have learned to make it in Mexico. 273 177

Murphy *(16:347)*, writing in 1865 as military superintendent of the Mescalero Apache, recorded his reluctance to give these Indians whole corn because they made from it an intoxicating drink—*"teeswin"* on which they got very drunk. In consequence no corn, but corn flour, 273 648

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was issued to them. The Mescalero Apache were reported by their agent *(24:*291) in 1900, as having made no *tulbai* since 1897. This is widely at variance with other reports and studies, however, for large quantities are known to have been made and consumed during that period.

Hrdlička *(12:*28) recorded that the Mescalero Apache formerly made an intoxicating drink from the inner bark of the western yellow pine *(Pinus scopulorum)*, and this was at times mixed with *tulbai*.

Another alcoholic drink among these Indians was mescal. The mescal crowns were roasted as described under the section on foods, and the outer leaves removed. The inner portion was cut into pieces, pounded until soft, and the pulp placed in a pouch made of animal hide. This was buried in the ground where it was usually allowed to remain for two days, although the Indians claimed that the longer it was buried the better it became. When removed from the ground the juice was squeezed from the pulp into a container and allowed to ferment for two or three days, when it was ready for use. Thus prepared, the mescal drink was quite potent. An occasional Apache allowed the mescal juice to spoil (change to a high percentage of acetic acid) before getting drunk on it. Cremony *(6:*217), in 1868, reported that the Apache made a drink by macerating the mescal root in water and allowing the mixture to ferment for several days, after which the liquid was boiled down to produce a strong intoxicating beverage. This use of the root seems unusual for we have nowhere encountered this custom among these Apache.

Similarly, sotol crowns *(Dasylirion wheeleri)* formerly were pit-baked for one night only, removed, peeled, crushed, mixed with a small amount of water in a rawhide container, and allowed to ferment underground about a day, or until fermentation had practically ceased, when the drink was ready for use. The concoction was also placed in pitch covered water jars or in wooden jugs cut from trees. Informants reported that the beverage might be allowed to stand for a month before being used. We have not been able to learn

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from our informants that these Apache ever distilled this or any other alcoholic beverage. 273

Both sotol and mescal beverages were reported as being older than *tulbai*. Informants said that they learned the use of *tulbai* from the Lipans and the Yaqui. [177]

Another mildly intoxicating alcoholic beverage formerly prepared, although at present not in common use, was made by finely grinding cooked mesquite *(Prosopis glandulosa)* pods and seeds. A little water was added during the grinding process and more to the ground mass, then the mixture allowed to ferment for a day and a night. This is a very old drink among the Apache. [137] [178]

These Apache formerly prepared and still make pinole as a very common drink. The fresh fruits of screw bean *(Strombocarpa pubescens)* were ground and to the meal was added some sweetening substance (sugar is now used) to make a thick drink. Another method of preparation was boiling the fruit until it got soft, making a sort of gruel, then adding the sweetening substance and drinking it. 272 [137]

The fruits of a number of species of Opuntia or prickly pear cactus were and still are mashed, the juice extracted and drunk, without fermenting, as a refreshing beverage which was regarded as very healthful. Non-intoxicating beverages were also made by boiling the leaves and young stems of the sage *(Artemisia aromatica)*, *Leucelene ericoides*, horsemint *(Monarda menthaefolia)*, pennyroyal *(Hedeoma nana)*, as well as the leaves of the lip fern *(Cheilanthes fendleri)* and cota *(Thelesperma gracile)*. This last named species which the Apache call "tea" has been extensively used in common with practically all Indians of southwestern United States, from ancient times down to the present, to make a beverage. Portions of the plant were wrapped into small bundles and might be used fresh or stored indefinitely. When boiled in water a red liquid was produced and was usually consumed without being sweetened, although the addition of a little sugar made the drink even more palatable. A drink used much as is coffee, made by boiling the fresh leaves of mariola *(Parthenium in-* [137] [171] [263] [137]

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canum), is the beverage known as *gaxe*. (This Indian word was derived from the Spanish word for coffee.)

* * *

The Apache used a few species of plants as narcotics. One of these was *Broussonetia secundiflora*, known as "mountain laurel," and also by the Spanish names *frijollito* or *frijolilla*. It is a beautiful evergreen shrub with glossy dark green leaves, common in the Guadalupe Mountains southwest of Carlsbad, although these Apache report having gathered bags full of beans on the roadside in the hills twenty miles from Roswell, as well as in Mexico.

The large, scarlet beans of this legume have been widely reported as being poisonous, having rather marked narcotic effects. The Apache are well aware of its narcotic effect. In one of their stories the trickster, coyote, intoxicates a party of prospectors by means of the beans. Present day Apache are not familiar with its use in *tulbai* but they report that the beans were formerly mixed with that beverage occasionally. One of our informants, speaking of the beans, said, "One day I felt sleepy. I ate two of these beans out of a pod. It sure waked me up. I didn't see anything. I just felt good." The beans were rarely eaten by the Apache, however. These seeds were also used ceremonially and an occasional Apache might be seen to wear a string of the red beans around his neck. According to Havard *(10*:39) these seeds contain an alkaloid, sophorine, which is a strong irritant narcotic poison. He also records that, according to Bellanger, the Indians near San Antonio, Texas, formerly used them as an intoxicant, half a bean producing "delirious exhiliration followed by a sleep which lasts two or three days" and that a whole bean would cause death.

Peyote or the Dumpling Cactus *(Lophophora williamsii)*, which contains a powerful alkaloid, was formerly in common use by the the Indians of northern Mexico who sliced and dried the plant and employed it in association with their ceremonial dances *(27:*104). It is reported that the use of Peyote by the Indians was learned from the Mexicans *(23:*1).

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It is not generally known that the Mescalero Apache (not the Chiricahua) ate peyote. They are not represented on Shonle's *(26)* map of the distribution of the use of peyote in the United States nor are they listed in the booklet compiled under the authority of the Bureau of Indian Affairs *(17)*. Opler *(22)* has shown, however, that the Mescalero Apache once practiced elaborate ceremonies centering around the utilization of peyote and he has gathered considerable data from former peyote eaters regarding the details of these rites and their place in the religious life of the tribe.

One of our informers said: "I ate it once in Oklahoma four or five years ago. I ate five ('buttons') my first time. It sure tasted strong. A man put eagle feathers over me and said, 'Go on and eat.' I did. I ate one at a time. They were bigger than the ones you have. They were green yet. One man ate 106 of them." The alkaloid of the plants affects the eyes and produces trances in which one has fantastic and colorful visions *(26:1)* but it is neither intoxicating nor habit forming. These Apache also claim that if the hairs from the plant get into your eyes they destroy the eyesight. Details concerning chemical composition and physiological and psychological effects of peyote are given in a bulletin by the office of Indian Affairs *(23)*.

The small, red fruits of the turkey or coyote cactus *(Opuntia leptocaulis)*, known among the Spanish-Americans as *tasajulla* and *garrambulo*, are still used by being crushed and mixed with *tulbai*. They are reported as having such pronounced narcotic effects that the Indians will not walk close to plants which bear them, and they claim that eating a single fruit will make one "drunk and dizzy."

These Apache do not now and apparently never have used Jimson weed *(Datura meteloides)*, or any other species of the genus, as a narcotic.

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List of Common, Apache, and Scientific Names of Plants to Which Reference Has Been Made

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Aciphyllaea, *tsisdzanebizaye*—"Small woman wood" (*Aciphyllaea acerosa* (DC.) A. Gray)
Algerita or redberry, *tsiltsui*—"yellow wood" (*Berberis haematocarpa* Woot.)
Amole, soapweed, *etlode*—(*Yucca glauca* Nutt.)
Anglepod, *digone*—(*Vincetoxicum productum* (Torr.) Vail)
Aspen, *tanabazi*—"round leaves" (*Populus tremuloides* Michx.)
Beargrass, *etlodcitsa*—"Yucca fringed" (*Nolina microcarpa* S. Wats.)
Cactus, coyote or turkey, tesajo, *xuclogo*—"crazy cactus" (*Opuntia leptocaulis* DC.)
Cactus, giant or sahuaro, *xucntsai*—"large cactus" (*Carnegiea gigantea* (Engelm.) Britt. & Rose)
Cactus, golden-spined strawberry, *xucbi*—(*Echinocereus chrysocentrus*)
Cactus, hedgehog, *xucbi*—(*Echinocereus coccineus* Engelm.)
Cactus, hedgehog or desert strawberry, *xucbi*—(*Echinocereus fendleri* (Engelm.) Rümpl.)
Cactus, salmon-flowered hedgehog, *xucbi*—(*Echinocereus leeanus* (Hook.) Lemaire)
Cactus, horned toad, *xucdedjulebizaye*—"small round cactus" (*Neomammillaria mainae* K. Brandegee)
Cactus, orpan pipe, pitahaya dulce, madaya (*Lemaireocereus thurberi* (Engelm.) Britt. & Rose)
Cactus, prickly pear, *gultcide*—(*Opuntia* sp.)
Cactus, rainbow, *xucbi*—(*Echinocereus rigidissimus* (Engelm.) Rose)
Cactus, snowball pincushion, *xucbi*—(*Neomammillaria oliviae* Orcutt)
Cactus, sunset, *xucbi*—(*Neomammillaria grahami*)
Cat-tail, *tel*—(*Typha latifolia* L.)
Celery, wild, chimaja, *tlotalbildadjinindei*—"plant they drink soup with" (*Cymopterus fendleri* A. Gray)
Chokecherry, *dze*—(*Prunus melanocarpa* (A. Nels.) Rydb.)
Chokecherry, *dzedeyui*—"sour choke cherry" (*Prunus virens* (W. & S.) A. Nels.)
Cota, Indian tea, *tlogaze*—"coffee plant" (*Thelesperma gracile* (Torr.) A. Gray)
Cottonwood, valley, *tis*—(*Populus wislizeni* (S. Wats.) Sarg.)
Currant, *libidze*—"horse berry" (*Ribes mescalerium* Coville)
Currant, *nantece*—"black fruit" (*Ribes wolfii* Rothr.)
Dandelion, *tloniltse*—"kills grass" (*Taraxacum officinale* Web.)
Datil, soapweed, *etlode*—(*Yucca baccata* Torr.)

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Dock, *tcigoetline*—"it is sticky" (*Rumex occidentalis* S. Wats.)
Dragon-head, *dziltlohnltcin*—"smelly mountain plant" (*Dracocephalum parviflorum* Nutt.)
Elderberry, *tsizol*—"soft wood" (*Sambucus microbotrys* Rydb.)
Evening primrose, *ndabaze*—"eye medicine" (*Anogra albicaulis* (Pursh) Britton)
Evening primrose, yellow, *tlonaitsui*—"plant with yellow flowers" (*Galpinsia lavandulaefolia* (Torr. and Gray) Small)
Evening primrose, *binestandadjiale*—"its fruit that is chewed" (*Anogra* sp.)
False flax, *tlaldei*—(*Camelina microcarpa* Andrzej.)
Fern, lip, *tlogaxe*—"coffee plant" (*Cheilanthes fendleri* Hook.)
Gooseberry, *daɣdje*—(*Ribes leptanthum* A. Gray)
Gooseberry, *daɣdje*—(*Ribes pinetorum* Greene)
Grape, *dastsa*—(*Vitis arizonica* Engelm.)
Grass, *tlobindalitci*—"red-eyed grass" (*Muhlenbergia neomexicana* Vasey)
Grass, big blue-stem, *tloltcide*—"red grass" (*Andropogon furcatus* Muhl.)
Grass, bunch, *tlaltso*—"big grass" (*Sporobolus airoides* Torr.)
Grass, dropseed (*Sporobolus cryptandrus* (Torr.) A. Gray)
Grass, grape-vine mesquite, *ndatso*—"big eye" (*Panicum obtusum* H. B. K.)
Grass, marsh foxtail, *lostsobitse*—"rat tail" (*Alopecurus aristulatus* Michx.)
Grass, mesquite, *tlo*—"grass" (*Muhlenbergia wrightii* Vasey)
Grass, *tlobinda*—"grass, its seeds" (*Muhlenbergia* sp.)
Grass, panic, *tloldei*—(*Panicum bulbosum* H. B. K.)
Grass, sacaton (*Sporobolus wrightii* Munro)
Grass, tall, or side-oats grama, *tlobindailkehntii*—"grass with the seeds lying on top of one another" (*Bouteloua curtipendula* (Michx.) Torr.)
Grass, Texan crab, *tsiyetlo*—"mosquito grass" (*Schedonardus paniculatus* (Nutt.) Trel.)
Ground-cherry, *nestani ɣgati*—"fruit that you see through" (*Physalis neomexicana* Rydb.)
Hackberry, *iyntlidz*—"hard seed" (*Celtis reticulata* Torr.)
Hawthorne, manzana de puya larga, *itcocntsei*—"big rose" (*Crataegus cerronis* A. Nels.)
Hop vine, *banbilagolndahi*—"make bread with it" (*Humulus lupulus neomexicana* A. Nels. and Cockerell)
Horsemint, *tloldai*—(*Monarda menthaefolia* Graham)
Jamesia, *tsilbaye*—"grey wood" (*Jamesia americana* Torr. and Gray)
Jimson weed, *itanasbase*—"round leaf" (*Datura meteloides* DC.)

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Juniper, alligator, *talehntsai*—"large juniper" (*Juniperus pachyphloea* Torr.)
Juniper, one-seeded, *tale*—"popping (when burning)" (*Juniperus monosperma* (Engelm.) Sarg.)
Juniper, Rocky Mountain, *taledeyni*—"sour juniper" (*Juniperus scopulorum* Sarg.)
Lamb's quarter, *ita*—"leaf" (*Chenopodium alba* L.)
Locust, New Mexican, *tlogocade*—"hooked plant" (*Robinia neomexicana* A. Gray)
Leucelene, *tloigaibizaye*—"small white plant" (*Leucelene ericoides* (Torr.) Greene)
Maple, box elder, *teilntsci*—"large ash?" (*Acer negundo* L.)
Maple, New Mexican, *itaacdlaye*—"five leaves" (*Acer neomexicanum* Greene)
Marigold, fetid, *tlonda*—"plant with seeds" (*Dysodia papposa* Hitchc.)
Maurandia, *tlonanesdidzi*—"vine" (*Maurandia wislizeni* A. Gray)
Mescal, century plant, *inada* (*Agave parryi* Engelm.)
Mesquite, *nastane*—"that which lies about" (*Prosopis glandulosa* Torr.)
Milkweed, *tloibee*—"milk plant" (*Asclepias speciosa* Torr.)
Mint, *tlohntcine*—"smelly weed" (*Mentha penardi* (Briq.) Rydb.)
Mountain laurel, frijollito or frijollilla, *yultudi*—"red bead" (*Bronsonetia secundiflora* Orteg.)
Mountain Mahogany (*Cercocarpus montanus* Raf.)
Mulberry, *tselkane* (*Morus microphylla* Buckl.)
Oak, *teintcile* (*Quercus*—all species except the following one)
Oak, *teintcile donagogade*—"oak that never dies" (*Quercus grisea* Liebm.)
Onion, wild *dzilyasayya*—"mountain onion" (*Allium cernuum* Roth.)
Onion, wild (*Allium geyeri* S. Wats.)
Osha, chuchupate, *haitcide*—"dig up" (*Ligusticum porteri* Coult. & Rose)
Palma (*Yucca macrocarpa* (Torr.) Engelm.)
Palmilla, *etlodeitsos*—"slender yucca" (*Yucca elata* Engelm.)
Pea, wild, *teitcada* (*Lathyrus leucanthus* Rydb.)
Pennyroyal, *tlonltcine*—"smelly plant" (*Hedeoma nana* (Torr.) Greene)
Peyote, dumpling cactus, *xueladjintndei*—"cactus which they eat" (*Lophophora williamsii* (Lemaire) Coult.)
Pigweed, *ndaji*—"black eye" (*Amaranthus retroflexus* L.)
Pine, limber or Western white, *gadndeze*—"long needles" (*Pinus flexilis* James)
Pine, piñon, *nictci* (*Pinus edulis* Engelm.)

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Pitahaya dulce. See organ pipe cactus
Plum, wild, *dzetso*—"big berry" (*Prunus americana* Marsh)
Potato, Indian, camote de ratón, *leisdze*—"rots in the ground" (*Hoffmanseggia densiflora* Benth.)
Potato, wild *dzilyanigokadze*—"mountain-top potato" (*Solanum fendleri* A. Gray)
Potato, wild, *nigokadze bezaye*—"small potato" (*Solanum jamesii* Torr.)
Privet, wild *iyentlidzi*—"hard seed" (*Forestiera neomexicana* A. Gray)
Purslane, common, *tsiyalcide*—"red hair" (*Portulaca oleracea* L.)
Raspberry, *dakalentsei*—"big strawberry" (*Rubus arizonicus* (Greene) Rydb.)
Red root, tumbleweed, *ndajin*—"black eye" (*Amaranthus graecizans* L.)
Rose, wild, *itcoc* (*Rosa fendleri* Crép.)
Rubber plant, New Mexican, mariola, *tlonadjiltohe*—"plant for smoking" or *tsigaze*—"wood coffee" or *gaze*—"coffee" (*Parthenium incanum* H. B. K.)
Sage, *iyaai*—"extends up" (*Artemisia aromatica* A. Nels.)
Sage, *tsejintci*—"strong smelling sage" (*Artemisia ludoviciana* Nutt.)
Sahuaro. See giant cactus.
Screw bean or tornillo, *tsesdise*—"rock twisted" (*Strombocarpa pubescens* (Benth.) A. Gray.)
Sedge, *tloliyesze*—"plant that stands next to horse" (*Cyperus fendlerianus* Boeckel)
Shepherd's purse (*Capsella bursa-pastoris* Medic.)
Soapweed, datil, *etlode* (*Yucca baccata* Torr.)
Sotol, *kogice*—"fire stick?" (*Dasylirion wheeleri* S. Wats.)
Strawberry, *dakale* (*Fragaria bracteata* Heller)
Sumac (*Rhus cismontana* Greene)
Sumac, desert, *tciltcihisdlusi*—"curly sumac" (*Rhus microphylla* Engelm.)
Sumac, three-leaved, lemita, skunk-bush, *tciltci*—"smelly wood" (*Rhus trilobata* Nutt.)
Sunflower, common, añil, *nonyile* (*Helianthus annuus* L.)
Sunflower, *nandelebizaye* (*Helianthus canus* (Britton) W. & S.)
Tansy mustard, *tlaldeihntsi*—"bitter grain" (*Sophia incisa* (Engelm.) Greene)
Thistle, *tlobindadatlidje*—"plant with blue seeds" (*Cirsium pallidum* W. & S.)
Unicorn plant, *daayadebitabizaye*—"unicorn plant with small leaves" (*Martynia louisiana* Mill.)

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Vetch, *libida*—"horses food" (*Vicia melilotoides* W. & S.)
Walnut, nogal, *kaltsede*—"that which one breaks" (*Juglans major* (Torr.) Heller)
Wood-sorrel, *itadnkodje*—"sour weed" (*Oxalis violacea* L.)
Gooseberry, *daudje*—(*Ribes lepthanthus* A. Gray)
Gooseberry, *daudje*—(*Ribes pinetorum* Greene)
Grass, bunch, *tlaltso*—"*big grass*" (*Sporobolus airoides* Torr.)
Grass, march foxtail, *lostsobitse*—"rat tail" (*Alopecurus aristulatus*
Grass, mesquite, *tlo*—"*grass*" (*Muhlenbergia wrightii* Vasey)
Grass sacaton (*Sporobolus wrightii* Munro)